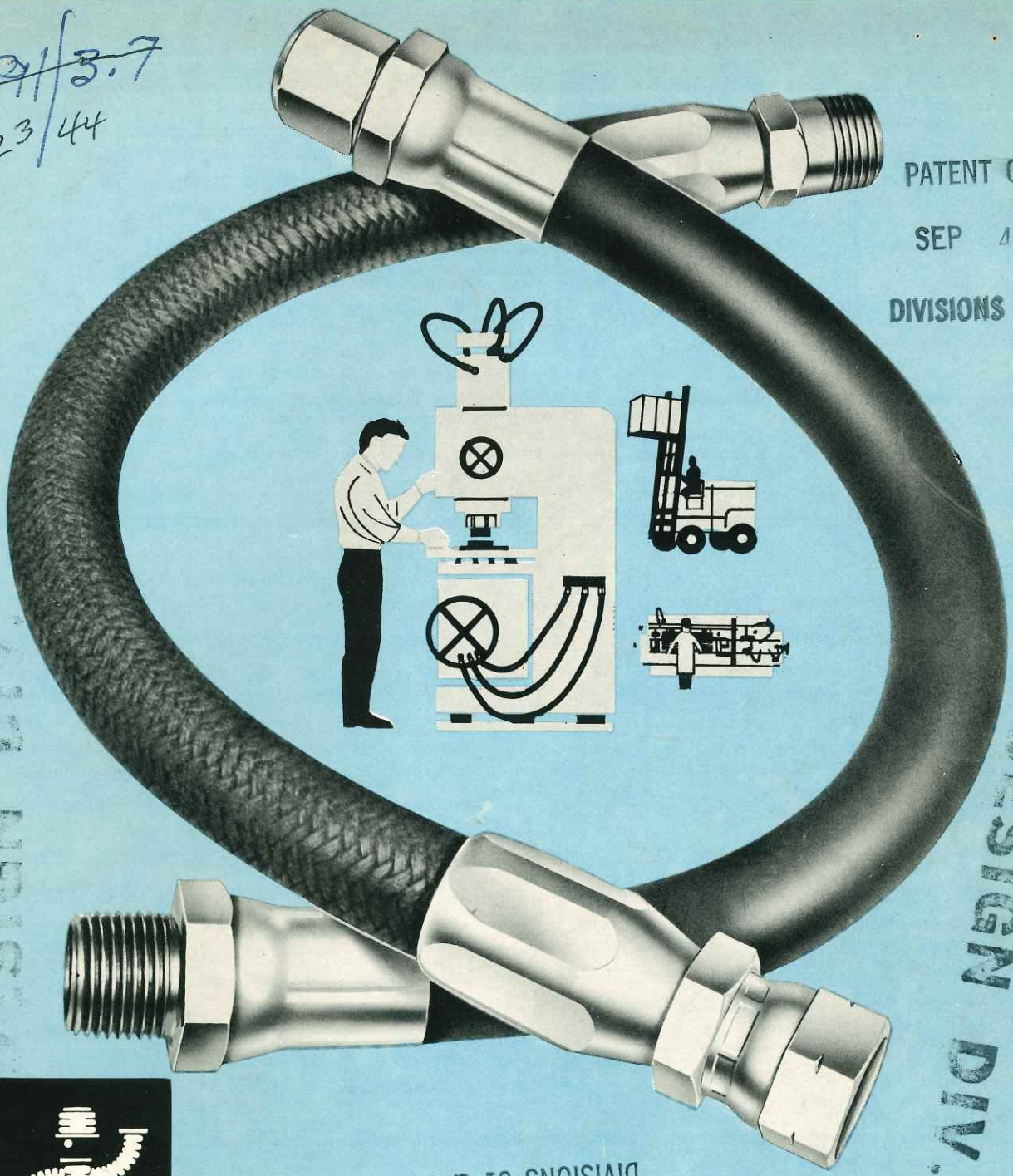
XD 21/3.7
23/44



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Flexonics

INDUSTRIAL SYNTHETIC HOSE AND FITTINGS

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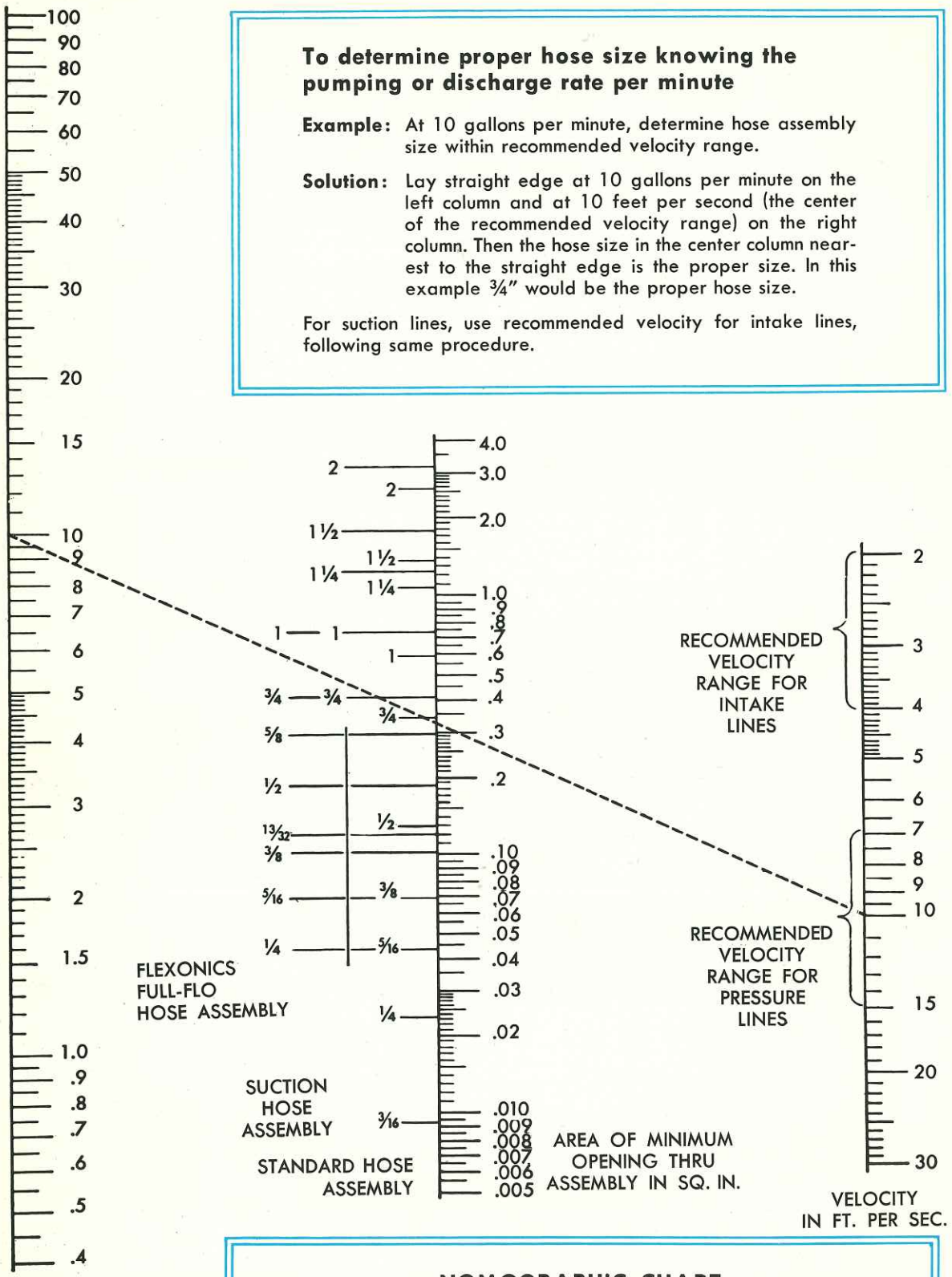
FLEXONICS CORPORATION • INDUSTRIAL HOSE DIVISION • ROCK FALLS, ILLINOIS

DETERMINING HOSE SIZE



To determine proper hose size knowing the pumping or discharge rate per minute

Example: At 10 gallons per minute, determine hose assembly size within recommended velocity range.

Solution: Lay straight edge at 10 gallons per minute on the left column and at 10 feet per second (the center of the recommended velocity range) on the right column. Then the hose size in the center column nearest to the straight edge is the proper size. In this example ¾" would be the proper hose size.

For suction lines, use recommended velocity for intake lines, following same procedure.

NOMOGRAPHIC CHART

Indicated flow capacity of Flexonics hose assemblies at recommended flow velocities

BASED ON FORMULA:

$$\text{AREA (SQ. IN.)} = \frac{\text{G.P.M.} \times 0.321}{\text{VELOCITY (FT./SEC.)}}$$

Recommendations are for oils having a maximum viscosity of 315 S.S.U. at 100°F., operating at temperatures between 65°F. and 155°F.

SELECTING A SYNTHETIC HOSE

For most industrial applications, selection of a suitable synthetic hose can be reduced to four simple steps:

(1) thorough investigation of the application requirements,
(2) choice of an adequate hose inner tube material,
(3) determination of a suitable hose, and
(4) selection of appropriate type and style end fittings for the application.

Step 1—Application Requirements

As a check list of major application requirements "STAMP" information should be obtained:
For temperatures, pressures, and motions it is usually imperative to consider peak, average, and minimum values.

S —Size hose?
T —Temperatures?
A —Application's nature including motions?
M—Media to be handled?
P —Pressures?

Step 2—Inner Tube Selection

Usually the temperature and corrosive characteristics of the fluid being conveyed determine the adequacy of various inner tube materials. In making a choice it should be kept in mind that the "ideal" tube is rarely obtainable or is prohibitive in price and that often lesser materials will prove quite satisfactory in actual service. Buna-N or Neoprene usually has a working temperature range from −40° to 250°F in hose tube materials. Similarly, Teflon ranges from −100°F to 450°F and has excellent chemical resistance to most media. The chemical resistance table on page 14 should be helpful in making a choice but should only be used as a guide to the serviceability of various synthetic materials and not as a final authority.

Step 3—Hose Selection

With "STAMP" information and an adequate inner tube chosen, a suitable hose may be selected from the Industrial Synthetic Hose Data Table on page 6. Note that the table groups all similar hose I.D. sizes together. Also for each I.D. size, hose types are arranged in sequence by maximum working pressure ratings. Hence, with the further aid of the column showing hose price rankings, a suitable hose may be quickly chosen. Generally, selections requiring both maximum temperature and pressure performance of a hose should be avoided. Also, in the event that the application involves handling a gas or a vapor and the hose chosen has a neoprene outer cover, the cover should be perforated prior to installation. By consulting Flexonics a special gas hose can be provided. Other hoses are also available on special request.

Step 4—Fitting Selection

The type and style fittings desired can be chosen from the Industrial Synthetic Hose Data Table on page 6. Or, a selection can be made using the detail fitting information shown on pages 8 to 12. Fitting "type" refers to the way a fitting is used to make an assembly: e.g., swage, reusable, factory crimp. Fitting "style" refers to the kind of thread connection on the end of a fitting: e.g., male pipe thread designated by an "A", swivel female SAE (JIC) 37° flare designated by an "F", etc. The index to fitting style designations is shown on page 15. Where no suitable fitting is found, please consult Flexonics since many other types and styles are available on special request.

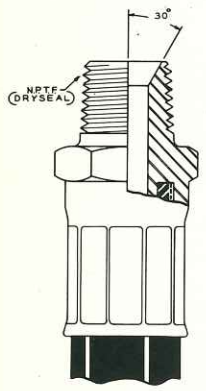
TABLE OF CONTENTS

	Page
Determining Hose Size	2
Selecting a Synthetic Hose	3
Fitting Style and Thread Information	4
Assembly Length Measurement	4
Determining Hose Length	5
Installation Precautions	5
Hose Data Tables	6
Synthetic Hose Types	7
Permanent Rigid Male (NPT Fitting)	8
Permanent Swivel Females (SAE [JIC] 37° Flare Fitting)	9
Reusable Rigid Male (NPT Fitting)	10
Permanent Swivel Male (NPT Fitting)	10 & 11
Reusable Swivel Female (SAE [JIC] 37° Flare Fitting)	11
Additional Fittings	12
Adaptors and Adaptor Unions	13
Chemical Resistance Data	14
Assembly and Order Instructions	15

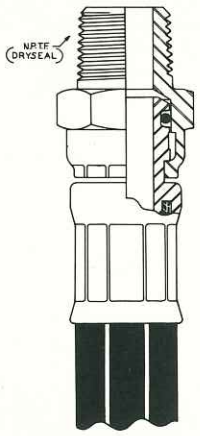
FITTING STYLE AND THREAD INFORMATION

The following fitting styles and threads have been accepted by the users of hydraulic hoses and fuel, oil, and air lines. They have been established over years of use and testing to enable the industry to adopt uniform specifications, facilitate interchange of parts and avoid use of incorrect threads which might cause leakage, loss of power, or failures.

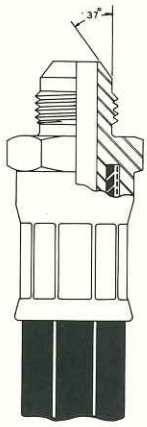
Standard Flexonics fitting styles are shown below:



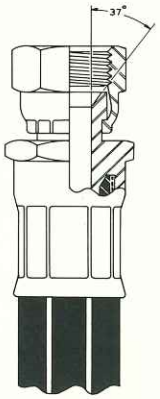
"A" Style — Rigid Male Pipe Thread



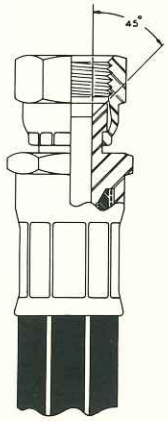
"C" Style — Swivel Male Pipe Thread ("O" Ring Pak-Nut)



"E" Style — Rigid Male SAE (JIC) 37° Flare



"F" Style — Swivel Female SAE (JIC) 37° Flare



"H" Style — Swivel Female SAE 45° Flare

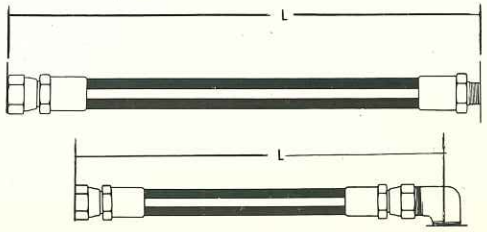
COMPARISON OF STANDARD THREAD TYPES AND SIZES

Hose I.D.	Mating Tube O.D.	Tube Dash Size	SAE 45° Flare	SAE (JIC) 37° Flare and AN	Reference Pipe Thread Sizes (NPTF)
1/8"	1/8"	2	5/16-24	5/16-24	1/8-27
1/8" or 3/16"	3/16"	3	3/8-24	3/8-24	1/8-27
3/16" or 1/4"	1/4"	4	7/16-20	7/16-20	1/8-27 or 1/4-18
1/4" or 5/16"	5/16"	5	1/2-20	1/2-20	1/4-18
1/4", 5/16" or 3/8"	3/8"	6	5/8-18	9/16-18	1/4-18 or 3/8-18
3/8", 13/32" or 1/2"	1/2"	8	3/4-16	3/4-16	3/8-18 or 1/2-14
1/2"	5/8"	10	7/8-14	7/8-14	1/2-14
5/8" or 3/4"	3/4"	12	1 1/16-14	1 1/16-12	3/4-14
3/4"	7/8"	14	1 1/4-12	1 3/16-12	3/4-14
7/8" or 1"	1"	16	1 3/8-12	1 5/16-12	1-11 1/2
1 1/8" or 1 1/4"	1 1/4"	20		1 5/8-12	1 1/4-11 1/2
1 3/8" or 1 1/2"	1 1/2"	24		1 7/8-12	1 1/2-11 1/2
1 13/16" or 2"	2"	32		2 1/2-12	2-11 1/2
			(See H Style Fitting)	(See E and F Style Fittings)	(See A and C Style Fittings)

ASSEMBLY LENGTH MEASUREMENT

1. METHOD OF LENGTH MEASUREMENT FOR INDUSTRIAL HOSE ASSEMBLIES

The overall length of a hose assembly is measured from the extreme end of one end fitting to the extreme end of the other end fitting, except when elbow fittings are used. In this case, measurement is made to the centerline of the sealing surface of the elbow end.

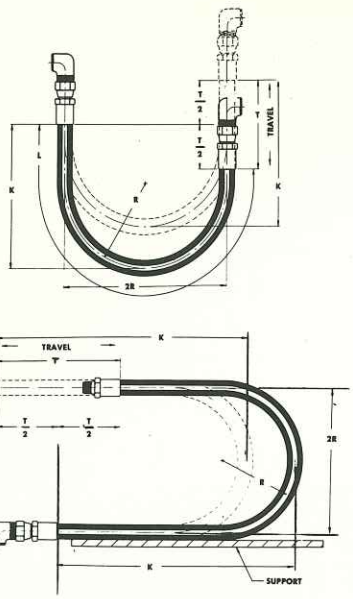


2. STANDARD ASSEMBLY LENGTH TOLERANCES

Overall Length	Tolerance
From 0" up to and incl. 12"	± 1/8"
Above 12" up to and incl. 18"	± 3/16"
Above 18" up to and incl. 36"	± 1/4"
Above 36"	± 1% of length measured to nearest 1/8"

DETERMINING HOSE LENGTH

CLASS "A" TRAVELING LOOP



TO DETERMINE HOSE LENGTH FOR A CLASS "A" TRAVELING LOOP APPLICATION

$$L = 4R + \frac{T}{2}$$

$$K = 1.43R + \frac{T}{2}$$

NOTES

T = Total travel (in.)

L = Hose **live** length (in.)*

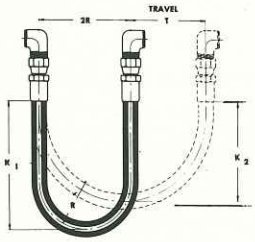
R = Hose centerline bend radius (in.)**

K = Loop length (in.)

*To obtain the assembly overall length, add to the live length the overall length of both end fittings. To obtain the length of cut hose required, add to the live length the "cut hose factor" for both end fittings.

**See the Industrial Synthetic Hose Data Table (page 6) for minimum centerline bend radius recommendations. Where space permits, a larger radius is generally preferable.

CLASS "B" TRAVELING LOOP



TO DETERMINE HOSE LENGTH FOR A CLASS "B" TRAVELING LOOP APPLICATION

$$L = 4R + 1.57T$$

$$K_1 = 1.43R + .785T$$

$$K_2 = 1.43R + \frac{T}{2}$$

INSTALLATION PRECAUTION

DO NOT TORQUE

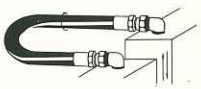
RIGHT

WRONG

Twisting on installation. To minimize possibility of damage to a hose from this cause, it is recommended that a swivel or adapter union be provided on one end of each hose assembly.

RIGHT

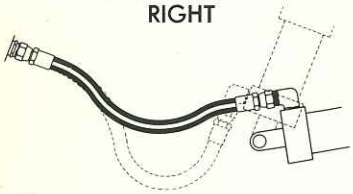
WRONG



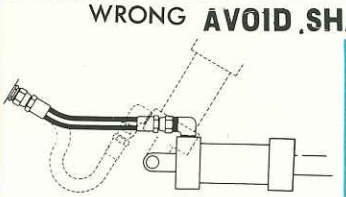
Twisting on flexure. Always install hose so that flexing takes place in the same plane as that formed by the bent hose.

AVOID SHARP BENDS

RIGHT



WRONG



Provide sufficient hose length to take the required movement and not subject any portion of it to an excessively small bend radius.

RIGHT

WRONG

Use elbow and angle adapters to change direction. This will improve hose life and improve appearance by avoiding excessive hose length

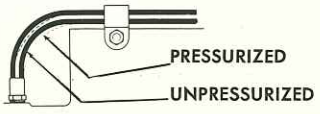
ALLOW FOR CONTRACTION

RIGHT

WRONG

Provide sufficient slack in straight lines to allow for possible contraction of hose under pressure. A hose can change in length from approximately +2% to −4% when pressurized.

RIGHT



Provide adequate freedom. At bends avoid clamping so curve can absorb changes. Similarly, avoid clamping high and low pressure lines together.

HOSE DATA TABLE

INDUSTRIAL SYNTHETIC HOSE DATA TABLE

This table lists the hoses and fittings used most frequently in industrial applications. Note that for ease of reference hoses of similar I.D. size are grouped together and are arranged in sequence by maximum working pressure. If your requirements are not met with the hoses and fittings shown, please consult Flexonics.

Hose I.D. (In.)	Max. Wkg. Pressure P.S.I. (1)	Temp. Range °F	Chem. Resist. of Tube (2)	Hose Price Rank (4)	Min. C.L. Bend Radius (In.)	Hose Cat. No.	STANDARD HOSE END FITTINGS (3)			Mean Hose O.D. (In.)	Wt. Per Foot (Lbs.)	Major Hose Features
							Factory Crimp (5)	Swage	Reusable			
3/16	3,000	−40° to 250°	BN	3	4	**8503**	AF	AF		.46	.16	SAE 100 R1 Thin Cover Hydraulic
3/16	3,000	−40° to 250°	BN	2	3	**1204**			AEFH	.52	.16	SAE 100 R5 Cotton Cover Hydr.
3/16	1,500 (6)	−100° to 450°	T	4	2	**7904**	AF			.32	.07	Corro. & Hi. Temp. Resistance
3/16	500	−40° to 250°	BN	1	2	**5203**	AH			.38	.06	SAE 30 R4 Fuel & Oil
1/4	7,000	−40° to 250°	BN	7	5	**7704**	AF			.75	.50	High Pressure Hydraulic
1/4	5,000	−40° to 250°	BN	6	4	**1104**	AF	AF	AF	.68	.36	SAE 100 R2 Hydraulic
1/4	2,750	−40° to 250°	BN	5	4	**8504**	A*C*F*	ACF		.53	.20	SAE 100 R1 Thin Cover Hydraulic
1/4	2,500	−40° to 250°	BN	4	3 3/8	**1205**			AEFH	.58	.20	SAE 100 R5 Cotton Cover Hydr.
1/4	1,500 (6)	−100° to 450°	T	8	3	**7905**	AF			.38	.09	Corro. & Hi Temp. Resistance
1/4	1,250	−40° to 250°	BN	3	3	**1304**	ACFH	ACFH		.56	.16	SAE 100 R3 Hydraulic
1/4	400	−40° to 250°	BN	1	2 1/2	**5204**	AFH			.44	.06	SAE 30 R4 Fuel & Oil
1/4	150 (6)	−40° to 250°	BN	2	3 1/2	**0904**	AFH			.63	.10	SAE 40 R2 Type B Air Brake
5/16	2,250	−40° to 250°	BN	2	4	**1206**			AEFH	.68	.23	SAE 100 R5 Cotton Cover Hydr.
5/16	1,500 (6)	−100° to 450°	T	3	4	**7906**	AF			.44	.11	Corro. & Hi Temp. Resistance
5/16	350	−40° to 250°	BN	1	3	**5205**	AFH			.53	.09	SAE 30 R4 Fuel & Oil
3/8	5,500	−40° to 250°	BN	6	6	**7706**	AF			.94	.62	High Pressure Hydraulic
3/8	4,000	−40° to 250°	BN	5	5	**1106**	AF	AF	AF	.84	.50	SAE 100 R2 Hydraulic
3/8	2,250	−40° to 250°	BN	4	5	**8506**	A*C*F*	ACF		.68	.28	SAE 100 R1 Thin Cover Hydraulic
3/8	1,125	−40° to 250°	BN	3	4	**1306**	ACFH	ACFH		.75	.24	SAE 100 R3 Hydraulic
3/8	250	−40° to 250°	BN	2	3 1/4	**5206**	AFH			.59	.11	SAE 30 R4 Fuel & Oil
3/8	150 (6)	−40° to 250°	BN	1	4 1/2	**0906**	AFH			.75	.12	SAE 40 R2 Type B Air Brake
13/32	2,000	−40° to 250°	BN	1	4 5/8	**1208**			AEFH	.75	.27	SAE 100 R5 Cotton Cover Hydr.
13/32	1,500 (6)	−100° to 450°	T	2	4 5/8	**7908**	AF			.56	.15	Corro. & Hi. Temp. Resistance
1/2	5,000	−40° to 250°	BN	6	8	**7708**	AF			1.08	.91	High Pressure Hydraulic
1/2	3,500	−40° to 250°	BN	5	7	**1108**	AF	AF	AF	.96	.57	SAE 100 R2 Hydraulic
1/2	2,000	−40° to 250°	BN	3	7	**8508**	A*C*F*	ACF		.81	.35	SAE 100 R1 Thin Cover Hydraulic
1/2	1,750	−40° to 250°	BN	4	5 1/2	**1210**			AEFH	.93	.36	SAE 100 R5 Cotton Cover Hydr.
1/2	1,200 (6)	−100° to 450°	T	7	5 1/2	**7910**	AF			.65	.19	Corro. & Hi. Temp. Resistance
1/2	1,000	−40° to 250°	BN	2	5	**1308**	ACFH	ACFH		.93	.35	SAE 100 R3 Hydraulic
1/2	150 (6)	−40° to 250°	BN	1	5	**0908**	AFH			.87	.20	SAE 40 R2 Type B Air Brake
5/8	1,500	−40° to 250°	BN	2	6 1/2	**1212**			AEFH	1.09	.44	SAE 100 R5 Cotton Cover Hydr
5/8	1,000 (6)	−100° to 450°	T	3	6 1/2	**7912**	AF			.78	.22	Corro. & Hi. Temp. Resistance
5/8	150 (6)	−40° to 250°	BN	1	6 1/4	**0910**	AFH			1.06	.30	SAE 40 R2 Type B Air Brake
3/4	4,000	−40° to 250°	BN	5	10 1/2	**7712**	AF			1.31	1.02	High Pressure Hydraulic
3/4	2,250	−40° to 250°	BN	4	9 1/2	**1112**	AF	AF	AF	1.25	.85	SAE 100 R2 Hydraulic
3/4	1,250	−40° to 250°	BN	3	9 1/2	**8512**	A*C*F*	ACF		1.09	.51	SAE 100 R1 Thin Cover Hydraulic
3/4	750	−40° to 250°	BN	2	6	**1312**	ACFH	ACFH		1.25	.51	SAE 100 R3 Hydraulic
3/4	300	−40° to 250°	BN	1	5	**3112**	A			1.13	.45	SAE 100 R4 Hydraulic Suction
7/8	800	−40° to 250°	BN	1	7 3/8	**1216**			AF	1.22	.43	SAE 100 R5 Cotton Cover Hydr.
7/8	600 (6)	−100° to 450°	T	2	9	**7916**	AF			1.05	.35	Corro. & Hi. Temp. Resistance
1	2,750	−40° to 250°	BN	5	13	**7716**	AF	AF		1.56	1.42	High Pressure Hydraulic
1	1,875	−40° to 250°	BN	4	11	**1116**	AF	AF	AF	1.56	1.10	SAE 100 R2 Hydraulic
1	1,000	−40° to 250°	BN	3	11	**8516**	A*C*F*	ACF		1.41	.70	SAE 100 R1 Thin Cover Hydraulic
1	550	−40° to 250°	BN	2	8	**1316**	ACF	ACF		1.50	.71	SAE 100 R3 Hydraulic
1	250	−40° to 250°	BN	1	6	**3116**	A			1.50	.70	SAE 100 R4 Hydraulic Suction
1 1/8	700	−100° to 450°	T	2	11	**7920**	AF			1.28	.63	Corro. & Hi. Temp. Resistance
1 1/8	625	−40° to 250°	BN	1	9	**1220**			AF	1.50	.51	SAE 100 R5 Cotton Cover Hydr.
1 1/4	2,500	−40° to 250°	BN	4	17	**7720**	AF	AF		2.00	2.07	High Pressure Hydraulic
1 1/4	1,625	−40° to 250°	BN	3	16	**1120**	AF	AF	AF	2.00	1.85	SAE 100 R2 Hydraulic
1 1/4	625	−40° to 250°	BN	2	16	**1020**	A*F*	AF		1.81	.98	SAE 100 R1 Hydraulic
1 1/4	200	−40° to 250°	BN	1	8	**3120**	A			1.75	.80	SAE 100 R4 Hydraulic Suction
1 3/8	500	−40° to 250°	BN	1	11	**1224**			AF	1.75	.62	SAE 100 R5 Cotton Cover Hydr.
1 1/2	2,250	−40° to 250°	BN	4	21	**7724**	AF	AF		2.25	2.35	High Pressure Hydraulic
1 1/2	1,250	−40° to 250°	BN	3	20	**1124**	AF	AF	AF	2.25	2.00	SAE 100 R2 Hydraulic
1 1/2	500	−40° to 250°	BN	2	20	**1024**	A*	A		2.06	1.20	SAE 100 R1 Hydraulic
1 1/2	150	−40° to 250°	BN	1	10	**3124**	A			2.00	1.10	SAE 100 R4 Hydraulic Suction
1 13/16	350	−40° to 250°	BN	1	13 1/8	**1232**			AF	2.22	.85	SAE 100 R5 Cotton Cover Hydr.
2	2,250	−40° to 250°	BN	4	26	**7732**	AF	AF		2.87	3.54	High Pressure Hydraulic
2	1,125	−40° to 250°	BN	3	22	**1132**	AF	AF	AF	2.75	2.60	SAE 100 R2 Hydraulic
2	375	−40° to 250°	BN	2	24	**1032**	A*	A		2.63	1.42	SAE 100 R1 Hydraulic
2	100	−40° to 250°	BN	1	12	**3132**	A			2.50	1.50	SAE 100 R4 Hydraulic Suction

NOTES
(1) Pressures shown are 1/4 min. burst and 1/2 proof.
(2) BN = Buna-N or Neoprene
T = Teflon

(3) To order—see page 15. Please Consult Flexonics where alternate end fitting style is required.
(4) One (1) is lowest priced hose for each size shown.
(5) Asterisk adjacent fitting style indicates Full-Flo Factory crimp is available.
(6) Min. burst exceeds 4 times value shown.

SYNTHETIC HOSE TYPES

Listed below are the principle types of synthetic hose required to serve industry. They range in Inside Diameter from 3/16 to 2 inches; Pressures from suction to 7,000 P.S.I., Maximum Working Pressure; Temperatures from −100° to +450°F. A variety of re-usable and swaged fittings are available from distributor's stock. Factory crimped assemblies are also available. If the requirements of your application cannot be met by types listed, please consult Flexonics.

TYPE 09*

Flexonics 0904—40R2 Type B

Size Range . . . . . 1/4 to 5/8
Max. Wkg. P.S.I. . . 150 P.S.I.
Temperatures . . . . . −40° to 250°F
Construction . . . . . Buna-N or Neoprene Tube, Fabric Wrapped, Neoprene Cover
Principal Use . . . . . Air Brake Hose

*Air brake hose is not recommended for fuel and oil service.

TYPE 10

Flexonics 1020—100R1

Size Range . . . . . 1 1/4 to 2
Max. Wkg. P.S.I. . . 625 to 375 P.S.I.
Temperatures . . . . . −40° to 250°F
Construction . . . . . Buna-N or Neoprene Tube, 1 Wire Braid, Neoprene Cover
Principal Use . . . . . Hydraulic Hose

TYPE 11

Flexonics 1120—100R2

Size Range . . . . . 1/4 to 2
Max. Wkg. P.S.I. . . 5,000 to 1,125 P.S.I.
Temperatures . . . . . −40° to 250°F
Construction . . . . . Buna-N or Neoprene Tube, 2 Wire Braid, Neoprene Cover
Principal Use . . . . . Hydraulic Hose

TYPE 12

Flexonics 1208—100R5

Size Range . . . . . 3/16 to 1 13/16
Max. Wkg. P.S.I. . . 3,000 to 350 P.S.I.
Temperatures . . . . . −40° to 250°F
Construction . . . . . Buna-N or Neoprene Tube, 1-Wire and Cotton Braid, Cotton Braid Cover
Principal Use . . . . . Hydraulic Hose

TYPE 13

Flexonics 1312—100R3

Size Range . . . . . 1/4 to 1
Max. Wkg. P.S.I. . . 1,250 to 550
Temperatures . . . . . −40° to 250°F
Construction . . . . . Buna-N or Neoprene Tube, 2 Fabric Braid, Neoprene Cover
Principal Use . . . . . Hydraulic Hose

TYPE 31

Flexonics 3124—100R4

Size Range . . . . . 3/4 to 2
Max. Wkg. P.S.I. . . 300 to 100 P.S.I. (Vacuum—up to 25" Hg)
Temperatures . . . . . −40° to 250°F
Construction . . . . . Buna-N or Neoprene Hose, Woven Fabric and Spiral Wire, Neoprene Cover
Principal Use . . . . . Hydraulic Suction Hose

TYPE 52

Flexonics 5204—30R4 Type 2

Size Range . . . . . 3/16 to 3/8
Max. Wkg. P.S.I. . . 500 to 250 P.S.I.
Temperatures . . . . . −40° to 250°F
Construction . . . . . Buna-N or Neoprene Tube, 1 Woven Fabric Neoprene Cover
Principal Use . . . . . Fuel and Oil Hose

TYPE 77

Flexonics 7720

Size Range . . . . . 1/4 to 2
Max. Wkg. P.S.I. . . 7,000 to 2,250 P.S.I.
Temperatures . . . . . −40° to 250°F
Construction . . . . . Buna-N or Neoprene Tube, 3 Wire Braid, Neoprene Cover
Principal Use . . . . . High Pressure Hydraulic Hose

TYPE 79

Size Range . . . . . 3/16 to 1 1/8
Max. Wkg. P.S.I. . . 1,500 to 700 P.S.I.
Temperatures . . . . . −100° to 450°F
Construction . . . . . Teflon Tube, Stainless Steel Wire Braid Cover
Principal Use . . . . . Corrosion and High Temperature Resistance

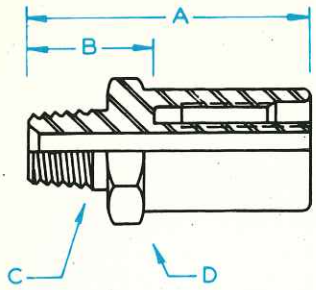
TYPE 85

Flexonics 8510

Size Range . . . . . 3/16 to 1
Max. Wkg. P.S.I. . . 3,000 to 1,000 P.S.I.
Temperatures . . . . . −40° to 250°F
Construction . . . . . Buna-N or Neoprene Tube, 1 Wire Braid, Thin Neoprene Cover
Principal Use . . . . . Hydraulic Hose

RIGID MALE NPT FITTINGS

PERMANENT



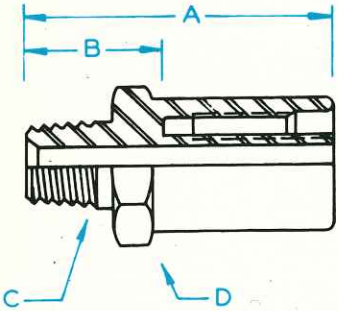
Type S10A, S11A, S13A, S77A and S85A

Rigid Male NPT—Permanent

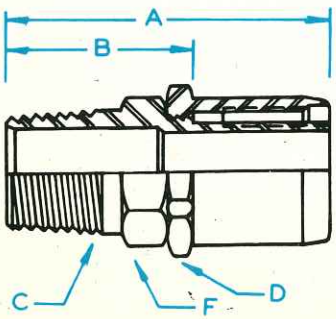
Flexonics permanently attached fittings are available on either crimped or swaged assemblies. In either case the carefully machined fittings are hydraulically attached to firmly grip the hose reinforcement. These Flexonics designed fittings give maximum service life at low cost.

		Catalog No.	Hose I.D.	A Overall Length	B Cut Hose Factor	C Pipe Thread NPTF	D Body Wrench Flat
TYPE 10 1 WIRE BRAID	**	S1020A20	1 1/4	2 63/64	1 11/32	1 1/4	2 1/16
	**	S1024A24	1 1/2	3 3/8	1 1/2	1 1/2	2 5/16
	**	S1032A32	2	3 39/64	1 23/32	2	2 7/8
TYPE 11 2 WIRE BRAID	*	S1104A04	1/4	2	13/16	1/4	13/16
	*	S1106A06	3/8	2 1/16	13/16	3/8	1
	*	S1106A08	3/8	2 5/16	1 1/16	1/2	1
	*	S1108A08	1/2	2 7/16	1 1/16	1/2	1 1/8
	*	S1112A12	3/4	2 5/8	1 1/8	3/4	1 7/16
	*	S1116A16	1	2 15/16	1 5/16	1	1 3/4
	*	S1120A20	1 1/4	3 27/32	1 27/32	1 1/4	2 1/4
	*	S1124A24	1 1/2	4 5/16	1 15/16	1 1/2	2 1/2
	*	S1132A32	2	5 1/4	2 1/8	2	3 1/8
TYPE 13 2 FABRIC BRAID	*	S1304A02	1/4	1 3/4	5/8	1/8	13/16
	*	S1304A04	1/4	1 15/16	13/16	1/4	13/16
	*	S1306A04	3/8	2	13/16	1/4	1
	*	S1306A06	3/8	2	13/16	3/8	1
	*	S1308A06	1/2	2 1/16	13/16	3/8	1 3/16
	*	S1308A08	1/2	2 1/4	1	1/2	1 3/16
	*	S1312A12	3/4	2 3/8	1	3/4	1 1/2
	*	S1316A16	1	2 11/16	1 3/16	1	1 13/16
TYPE 77 3 WIRE BRAID	***	S7716A16	1	2 15/16	1 5/16	1	1 3/4
	***	S7720A20	1 1/4	3 27/32	1 27/32	1 1/4	2 1/4
	***	S7724A24	1 1/2	4 5/16	1 15/16	1 1/2	2 1/2
	***	S7732A32	2	5 1/4	2 1/8	2	3 1/8
TYPE 85 1 WIRE BRAID	**	S8503A02	3/16	1 9/16	23/32	1/8	9/16
	**	S8504A04	1/4	1 3/4	3/4	1/4	11/16
	**	S8506A06	3/8	2	29/32	3/8	7/8
	**	S8508A08	1/2	2 5/16	1 3/16	1/2	1
	**	S8512A12	3/4	2 1/2	1 17/64	3/4	1 5/16
	**	S8516A16	1	2 15/16	1 27/64	1	1 5/8

*Also available in factory crimped assemblies. Number to be preceded by "C" to designate crimp; i.e., C1104A04.
**Also available in factory crimped and full-flo crimped assemblies. Number to be preceded by "C" to designate crimp; i.e., C8504A04, and "CFF" to designate Ful-Flo crimp.
***Also available in factory crimped assemblies from 1/4" I.D. thru 2" I.D. Number to be preceded by "C" to designate crimp; i.e. C7704A04.



Type C09A, C13A and C52A



Type C79A

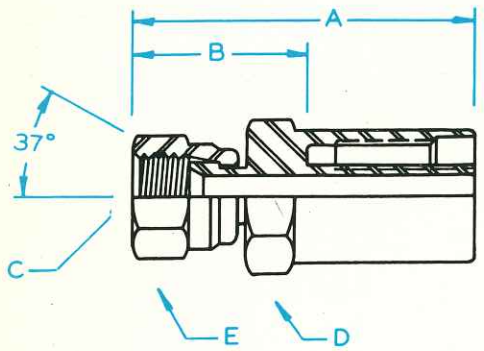
	Catalog No.	Hose I.D.	A Overall Length	B Cut Hose Factor	C Pipe Thrd. NPTF	D Body Wrench Flat	F Stem Wrench Flat
TYPE 09 FABRIC WRAPPED	C0904A02	1/4	1 5/16	19/32	1/8	13/16	
	C0904A04	1/4	1 7/16	23/32	1/4	13/16	
	C0906A04	3/8	1 9/16	3/4	1/4	15/16	
	C0906A06	3/8	1 17/32	23/32	3/8	15/16	
	C0908A08	1/2	1 25/32	29/32	1/2	1 1/16	
	C0910A08	5/8	1 15/16	1 5/16	1/2	1 1/4	
TYPE 31 SPIRAL WIRE	C3112A12	3/4	2 1/4	1 5/32	3/4	1 1/4	
	C3116A16	1	2 5/16	1 11/32	1	1 5/8	
	C3120A20	1 1/4	2 13/16	1 13/32	1 1/4	2	
	C3124A24	1 1/2	3 1/8	1 5/8	1 1/2	2 1/4	
	C3132A32	2	3 3/4	1 1/2	2	3	
TYPE 52 1 FABRIC BRAID	C5203A02	3/16	31/32	17/32	1/8	7/16	
	C5204A02	1/4	1 3/16	9/16	1/8	9/16	
	C5204A04	1/4	1 1/8	3/4	1/4	9/16	
	C5205A04	5/16	1 5/32	21/32	1/4	5/8	
	C5206A04	3/8	1 5/16	3/4	1/4	3/4	
	C5206A06	3/8	1 5/16	3/4	3/8	3/4	
TYPE 79 TEFLON	C7904A02	3/16	1 7/32	23/32	1/8	1/2	1/2
	C7905A04	1/4	1 7/16	1 5/16	1/4	9/16	9/16
	C7906A04	5/16	1 9/16	1 5/16	1/4	5/8	5/8
	C7908A06	13/32	1 3/4	1	3/8	3/4	3/4
	C7910A08	1/2	2 3/16	1 1/4	1/2	7/8	7/8
	C7912A12	5/8	2 1/4	1 5/16	3/4	1	1 1/8
	C7916A16	7/8	2 7/16	1 1/2	1	1 1/4	1 3/8
	C7920A20	1 1/8	2 3/4	1 9/16	1 1/4	1 5/8	1 11/16

SWIVEL FEMALE SAE (JIC) 37° FLARE FITTINGS

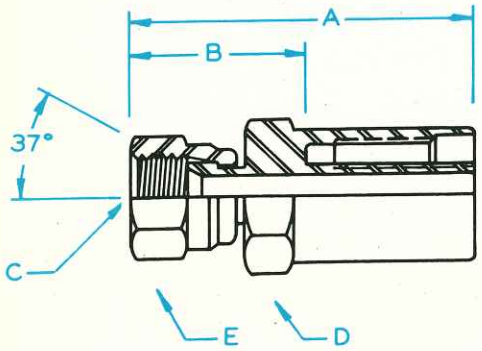
PERMANENT

Swivel Female SAE (JIC) 37° Flare Permanent

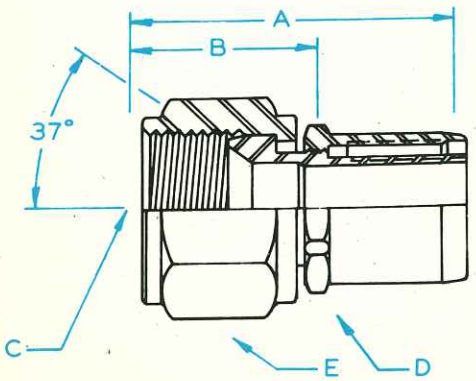
Flexonics permanently attached fittings are available on either crimped or swaged assemblies. In either case, the carefully machined fittings are hydraulically attached to firmly grip the hose reinforcement. These Flexonics designed fittings give maximum service life at low cost.



Type S10F, S11F, S13F, S77F and S85F



Type C09F, C52F and C77F



Type C79F

		Catalog No.	Hose I.D.	Tube O.D.	A Overall Length	B Cut Hose Factor	C Thread	D Body Wrench Flat	E Nut Wrench Flat
T 10 1 WIRE BRAID		**S1020F20	1 1/4	1 1/4	3 17/64	1 41/64	1 5/8-12	2 1/16	2
TYPE 11 2 WIRE BRAID	*	S1104F04	1/4	1/4	2 7/64	5/64	7/16-20	13/16	9/16
		S1104F06	1/4	3/8	2 7/32	1 1/32	9/16-18	13/16	11/16
		S1106F08	3/8	1/2	2 13/32	1 5/32	3/4-16	1	7/8
		S1108F10	1/2	5/8	2 23/32	1 11/32	7/8-14	1 1/8	1
		S1112F12	3/4	3/4	2 61/64	1 29/64	1 1/16-12	1 7/16	1 1/4
		S1116F16	1	1	3 7/32	1 39/64	1 5/16-12	1 3/4	1 1/2
		S1120F20	1 1/4	1 1/4	3 63/64	1 63/64	1 5/8-12	2 1/4	2
		S1124F24	1 1/2	1 1/2	4 31/32	2 11/32	1 7/8-12	2 1/2	2 1/4
		S1132F32	2	2	5 59/64	2 5/64	2 1/2-12	3 1/8	2 7/8
TYPE 13 2 FABRIC BRAID	*	S1304F04	1/4	1/4	2 1/16	1 5/16	7/16-20	13/16	9/16
		S1306F06	3/8	3/8	2 15/64	1 3/64	9/16-18	1	11/16
		S1308F08	1/2	1/2	2 27/64	1 11/64	3/4-16	1 3/16	7/8
		S1308F10	1/2	5/8	2 17/32	1 9/32	7/8-14	1 3/16	1
		S1312F12	3/4	3/4	2 23/32	1 11/32	1 1/16-12	1 1/2	1 1/4
		S1316F16	1	1	2 15/16	1 7/16	1 5/16-12	1 13/16	1 1/2
TYPE 77 3 WIRE BRAID		S7716F16	1	1	3 7/32	1 39/64	1 5/16-12	1 3/4	1 1/2
		S7720F20	1 1/4	1 1/4	3 63/64	1 63/64	1 5/8-12	2 1/4	2
		S7724F24	1 1/2	1 1/2	4 31/32	2 11/32	1 7/8-12	2 1/2	2 1/4
		S7732F32	2	2	5 59/64	2 51/64	2 1/2-12	3 1/8	2 7/8
TYPE 85 1 WIRE BRAID	**	S8503F04	3/16	1/4	1 23/32	7/8	7/16-20	9/16	9/16
		S8504F04	1/4	1/4	1 49/64	49/64	7/16-20	11/16	9/16
		S8504F06	1/4	3/8	1 7/8	7/8	9/16-18	11/16	11/16
		S8506F08	3/8	1/2	2 5/16	1 7/32	3/4-16	7/8	7/8
		S8508F10	1/2	5/8	2 15/32	1 11/32	7/8-14	1	1
		S8512F12	3/4	3/4	2 27/32	1 39/64	1 1/16-12	1 5/16	1 1/4
		S8516F16	1	1	3 11/64	1 21/32	1 5/16-12	1 5/8	1 1/2
TYPE 09 FABRIC WRAPPED		C0904F04	1/4	1/4	1 17/32	51/64	7/16-20	13/16	9/16
		C0904F05	1/4	5/16	1 41/64	59/64	1/2-20	13/16	5/8
		C0906F08	3/8	1/2	1 53/64	1 1/64	3/4-16	1 5/16	7/8
		C0908F08	1/2	1/2	1 59/64	1 3/64	3/4-16	1 1/16	7/8
		C0908F10	1/2	5/8	1 31/32	1 3/32	7/8-14	1 1/16	1
		C0910F10	5/8	5/8	2 1/8	1 1/8	7/8-14	1 1/4	1
TYPE 52 1 WOV FABRIC		C5204F05	1/4	5/16	1 5/16	1 5/16	1/2-20	9/16	5/8
		C5205F05	5/16	5/16	1 13/32	29/32	1/2-20	5/8	5/8
		C5205F06	5/16	3/8	1 7/16	1 5/16	9/16-18	5/8	11/16
		C5206F06	3/8	3/8	1 1/2	1 5/16	9/16-18	3/4	11/16
		C5206F08	3/8	1/2	1 5/8	1 1/16	3/4-16	3/4	7/8
TYPE 77 3 WIRE BRAID		C7704F04	1/4	1/4	2 27/64	1 15/64	7/16-20	7/8	9/16
		C7706F08	3/8	1/2	2 13/32	1 5/32	3/4-16	1	7/8
		C7708F08	1/2	1/2	2 29/32	1 17/32	3/4-16	1 3/16	7/8
		C7708F10	1/2	5/8	2 23/32	1 11/32	7/8-14	1 3/16	1
		C7712F12	3/4	3/4	2 61/64	1 29/64	1 1/16-12	1 7/16	1 1/4
		C7716F16	1	1	3 7/32	1 39/64	1 5/16-12	1 3/4	1 1/2
		C7720F20	1 1/4	1 1/4	3 63/64	1 63/64	1 5/8-12	2 1/4	2
		C7724F24	1 1/2	1 1/2	4 31/32	2 11/32	1 7/8-12	2 1/2	2 1/4
		C7732F32	2	2	5 59/64	2 51/64	2 1/2-12	3 1/8	2 7/8
TYPE 79 TEFLON		C7904F04	3/16	1/4	1 17/64	49/64	7/16-20	1/2	9/16
		C7905F05	1/4	5/16	1 19/64	51/64	1/2-20	9/16	5/8
		C7906F06	5/16	3/8	1 15/32	27/32	9/16-18	5/8	11/16
		C7908F08	13/32	1/2	1 49/64	1 1/16	3/4-16	3/4	7/8
		C7910F10	1/2	5/8	2 5/64	1 9/64	7/8-14	7/8	1
		C7912F12	5/8	3/4	2 7/64	1 11/64	1 1/16-12	1	1 1/4
		C7916F16	7/8	1	2 15/64	1 19/64	1 5/16-12	1 1/4	1 1/2
		C7920F20	1 1/8	1 1/4	2 39/64	1 27/64	1 5/8-12	1 5/8	2

*Also available in factory crimped assemblies. Number to be preceded by "C" to designate crimp; i.e., C1104F04.

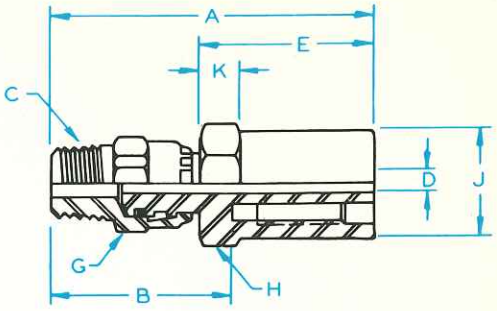
**Also available in factory crimped and full-flo crimped assemblies. Number to be preceded by "C" to designate crimp; i.e., C8504F04, and "CFF" to designate full-flo crimp.

SWIVEL MALE NPT FITTINGS

PERMANENT

Swivel Male NPT—Permanent

Flexonics swivel male pipe thread fitting swivels because of its patented "O" ring Pak-Nut. It is available permanently attached in either crimped or swaged assemblies. Use of this Flexonics "first" permits lower cost installations by eliminating the need for adapter unions.



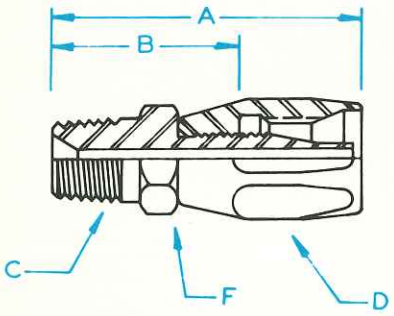
Type S13C Fitting

	Catalog No.	Hose I.D.	A Over-All Length	B Cut Hose Factor	C Thread NPTF	D Min. Flow Dia.	E Body Length	G Nut Hex.	H Body Hex.	J Body Dia.	K Hex. Width
* TYPE 13 2 FABRIC BRAID	S1304C04	1/4	2 43/64	1 35/64	1/4	5/32	1 3/8	1 1/16	13/16	.812	5/16
	S1306C06	3/8	2 25/32	1 39/64	3/8	9/32	1 7/16	1 5/16	1	1.000	5/16
	S1308C08	1/2	3 7/64	1 55/64	1/2	13/32	1 1/2	1 1/16	1 3/16	1.187	5/16
	S1312C12	3/4	3 5/16	1 15/16	3/4	41/64	1 5/8	1 7/16	1 1/2	1.500	3/8
	S1316C16	1	3 25/32	2 9/32	1	57/64	1 3/4	1 11/16	1 13/16	1.812	3/8

*Also available in factory crimped assemblies, number to be preceded by "C" to designate crimp; i.e., C1306C06.

RIGID MALE NPT FITTINGS

REUSABLE



Types R11A and R12A Fitting

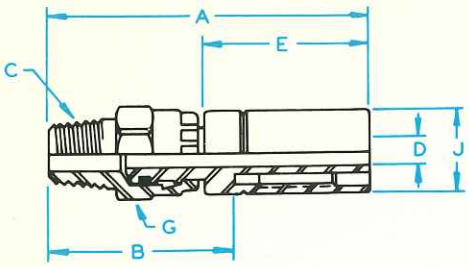
Rigid Male NPT—Reusable Fittings

Flexonics two-piece Reusable fittings are designed for easy assembly and disassembly on synthetic hoses. In standard hex sizes and requiring **no special assembly tools**, these fittings can be stocked at location and afford the user a minimum of downtime and simple skills to assemble. Flexonics design insures firm gripping on hose reinforcement while permitting continued re-use.

	Catalog No.	Hose I.D.	A Overall Length	B Cut Hose Factor	C Pipe Thread NPTF	D Body Wrench Flat	F Stem Wrench Flat
TYPE 11 2 WIRE BRAID	R1104A02	1/4	2 23/64	1 9/64	1/8	13/16	11/16
	R1104A04	1/4	2 17/32	1 5/16	1/4	13/16	11/16
	R1106A04	3/8	2 49/64	1 9/32	1/4	1	11/16
	R1106A06	3/8	2 51/64	1 21/64	3/8	1	3/4
	R1108A06	1/2	2 7/8	1 3/8	3/8	1 1/8	3/4
	R1108A08	1/2	3 5/64	1 9/16	1/2	1 1/8	1
	R1112A12	3/4	3 47/64	1 55/64	3/4	1 1/2	1 1/4
	R1116A16	1	4 17/32	2 15/32	1	1 3/4	1 1/2
	R1120A20	1 1/4	5 9/64	2 53/64	1 1/4	2 1/4	1 7/8
	R1124A24	1 1/2	5 21/64	3 7/64	1 1/2	2 1/2	2 1/8
	R1132A32	2	5 47/64	3 1/64	2	3	2 5/8
TYPE 12 1 WIRE–1 COTTON BRAID	R1204A02	3/16	1 21/32	29/32	1/8	5/8	9/16
	R1204A04	3/16	1 55/64	1 7/64	1/4	5/8	9/16
	R1205A04	1/4	1 15/16	1 11/64	1/4	11/16	5/8
	R1206A04	5/16	2 7/64	1 7/32	1/4	13/16	11/16
	R1206A06	5/16	2 7/64	1 7/32	3/8	13/16	11/16
	R1208A06	13/32	2 15/32	1 5/16	3/8	15/16	13/16
	R1208A08	13/32	2 23/32	1 9/16	1/2	15/16	7/8
	R1210A08	1/2	2 55/64	1 9/16	1/2	1 1/8	1
	R1212A12	5/8	3 3/16	1 5/8	3/4	1 1/4	1 1/8
	R1216A12	7/8	2 25/32	1 33/64	3/4	1 7/16	1 5/16
	R1216A16	7/8	2 31/32	1 45/64	1	1 7/16	1 3/8
	R1220A20	1 1/8	3 7/32	1 55/64	1 1/4	1 3/4	1 3/4
	R1224A24	1 3/8	3 29/64	2	1 1/2	1 13/16	2
	R1232A32	3 13/16	3 31/32	2 1/8	2	2 1/2	2 1/2

SWIVEL MALE NPT FITTINGS

PERMANENT



Type S85C

Swivel Male NPT—Permanent

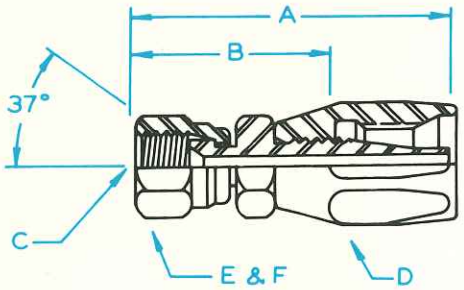
Flexonics swivel male pipe thread fitting swivels because of its patented "O" ring Pak-Nut. It is available permanently attached in either crimped or swaged assemblies. Use of this Flexonics "first" permits lower cost installations by eliminating the need for adapter unions.

	Catalog No.	Hose I.D.	A Overall Length	B Cut Hose Factor	C Thread NPTF	D Min. Flow Dia.	E Body Length	G Nut Hex.	J Body Dia.
TYPE 85 1 WIRE BRAID *	S8504C04	1/4	2 29/64	1 29/64	1/4	3/16	1 5/32	1 1/16	.687
	S8506C06	3/8	2 19/32	1 1/2	3/8	19/64	1 1/4	1 5/16	.875
	S8508C08	1/2	2 57/64	1 49/64	1/2	25/64	1 9/32	1 1/16	1.000
	S8512C12	3/4	3 3/8	2 9/64	3/4	41/64	1 11/16	1 7/16	1.312
	S8516C16	1	3 31/32	2 15/32	1	29/32	1 11/16	1 5/8	1.625

*ALSO AVAILABLE IN FACTORY CRIMPED AND FULL-FLOW CRIMPED ASSEMBLIES, NUMBER TO BE PRECEDED BY "C" TO DESIGNATE CRIMP; I.E., C8506C06, AND "CFF" TO DESIGNATE FULL-FLOW.

SWIVEL FEMALE SAE (JIC) 37° FLARE FITTINGS

REUSABLE



Type R11F and R12F

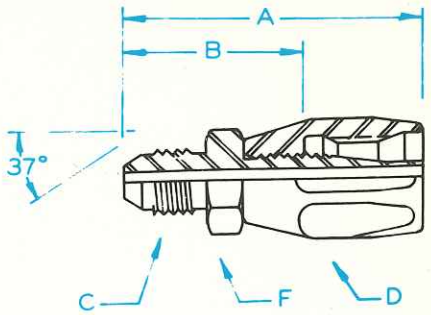
Swivel Female SAE (JIC) 37° Flare Reusable Fittings

Flexonics two-piece Reusable fittings are designed for easy assembly and disassembly on synthetic hoses. In standard hex sizes and requiring **no special assembly tools**, these fittings can be stocked at location and afford the user a minimum of downtime and simple skills to assemble. Flexonics design insures firm gripping on hose reinforcement while permitting continued re-use.

	Catalog No.	Hose I.D.	Tube O.D.	A Overall Length	B Cut Hose Factor	C Thread	D Body Wrench Flat	(F) Stem & (E) Nut Wrench Flat
TYPE 11 2 WIRE BRAID	R1104F04	1/4	1/4	2 5/8	1 13/32	7/16-20	13/16	9/16
	R1104F05	1/4	5/16	2 47/64	1 1/2	1/2-20	13/16	5/8
	R1106F06	3/8	3/8	3	1 33/64	9/16-18	1	1 1/16
	R1106F08	3/8	1/2	3 3/32	1 5/8	3/4-16	1	7/8
	R1108F08	1/2	1/2	3 3/16	1 11/16	3/4-16	1 1/8	7/8
	R1108F10	1/2	5/8	3 15/64	1 23/32	7/8-14	1 1/8	1
	R1112F12	3/4	3/4	4 1/16	2 3/16	1 1/16-12	1 1/2	1 1/4
	R1116F16	1	1	4 3/4	2 11/16	1 5/16-12	1 3/4	1 1/2
	R1120F20	1 1/4	1 1/4	5 3/8	3 1/16	1 5/8-12	2 1/4	2
	R1124F24	1 1/2	1 1/2	5 23/32	3 1/2	1 7/8-12	2 1/2	2 1/4
	R1132F32	2	2	6 13/32	3 11/16	2 1/2-12	3	2 7/8
TYPE 12 1 WIRE—1 COTTON BRAID	R1204F04	3/16	1/4	1 15/16	1 3/16	7/16-20	5/8	9/16
	R1205F05	1/4	5/16	2 9/64	1 23/64	1/2-20	1 1/16	5/8
	R1206F06	5/16	3/8	2 5/16	1 13/32	9/16-18	13/16	1 1/16
	R1208F08	13/32	1/2	2 49/64	1 5/8	3/4-16	1 5/16	7/8
	R1210F10	1/2	5/8	3 3/64	1 3/4	7/8-14	1 1/8	1
	R1212F12	5/8	3/4	3 5/16	2	1 1/16-12	1 1/4	1 1/4
	R1216F16	7/8	1	3 13/64	1 15/16	1 5/16-12	1 7/16	1 1/2
	R1220F20	1 1/8	1 1/4	3 7/16	2 3/32	1 5/8-12	1 3/4	2
	R1224F24	1 3/8	1 1/2	3 47/64	2 9/32	1 7/8-12	1 15/16	2 1/4
	R1232F32	1 13/16	2	4 41/64	2 51/64	2 1/2-12	2 1/2	2 7/8

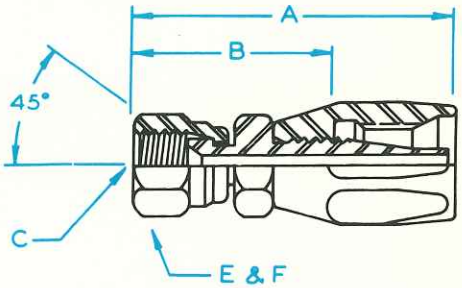
ADDITIONAL FITTINGS

	Catalog No.	Hose I.D.	Tube O.D.	A Overall Length	B Cut Hose Factor	C Thread	D Body Wrench Flat	E Nut Wrench Flat	F Stem Wrench Flat
TYPE 12 1 WIRE—1 COTTON BRAID	R1204E04	3/16	1/4	1 27/32	1 3/32	7/16-20	5/8		1/2
	R1205E05	1/4	5/16	1 15/16	1 5/32	1/2-20	1 1/16		9/16
	R1206E06	5/16	3/8	2 7/64	1 13/64	9/16-18	13/16		5/8
	R1208E08	13/32	1/2	2 9/16	1 13/32	3/4-16	15/16		13/16
	R1210E10	1/2	5/8	2 7/8	1 37/64	7/8-14	1 1/8		15/16
	R1212E12	5/8	3/4	3 1/64	1 47/64	1 1/16-12	1 1/4		1 1/8
TYPE 12 1 WIRE—1 COTTON BRAID	R1204H04	3/16	1/4	1 15/16	1 3/16	7/16-20	5/8	9/16	9/16
	R1205H05	1/4	5/16	2 9/64	1 23/64	1/2-20	1 1/16	5/8	5/8
	R1206H06	5/16	3/8	2 5/16	1 27/64	5/8-18	13/16	3/4	3/4
	R1208H08	13/32	1/2	2 49/64	1 5/8	3/4-16	15/16	7/8	7/8
	R1210H10	1/2	5/8	3 3/64	1 3/4	7/8-14	1 1/8	1	1
	R1212H12	5/8	3/4	3 9/16	2	1 1/16-14	1 1/4	1 1/4	1 1/4
TYPE 13 2 FABRIC BRAID	* S1304H04	1/4	1/4	2 1/16	1 5/16	7/16-20	13/16	9/16	
	* S1306H06	3/8	3/8	2 1/8	1 5/16	5/8-18	1	13/16	
	* S1308H08	1/2	1/2	2 27/64	1 11/64	3/4-16	1 3/16	7/8	
	* S1308H10	1/2	5/8	2 17/32	1 9/32	7/8-14	1 3/16	1	
	* S1312H12	3/4	3/4	2 13/16	1 7/16	1 1/16-14	1 1/2	1 3/16	
TYPE 09 FABRIC WRAPPED	C0904H04	1/4	1/4	1 17/32	51/64	7/16-20	13/16	9/16	
	C0904H05	1/4	5/16	1 41/64	59/64	1/2-20	13/16	5/8	
	C0906H08	3/8	1/2	1 53/64	1 1/64	3/4-16	15/16	7/8	
	C0908H08	1/2	1/2	1 59/64	1 3/64	3/4-16	1 1/16	7/8	
	C0908H10	1/2	5/8	1 31/32	1 3/32	7/8-14	1 1/16	1	
	C0910H10	5/8	5/8	2 1/8	1 1/8	7/8-14	1 1/4	1	
TYPE 52 1 WOVEN FABRIC	C5203H03	3/16	3/16	1 5/64	21/32	3/8-24	7/16	7/16	
	C5203H04	3/16	1/4	1 5/32	23/32	7/16-20	7/16	9/16	
	C5204H04	1/4	1/4	1 1/8	3/4	7/16-20	9/16	9/16	
	C5204H05	1/4	5/16	1 5/16	1 5/16	1/2-20	9/16	5/8	
	C5205H05	5/16	5/16	1 13/32	29/32	1/2-20	5/8	5/8	
	C5205H06	5/16	3/8	1 7/16	1 5/16	5/8-18	5/8	3/4	
	C5206H06	3/8	3/8	1 1/2	1 5/16	5/8-18	3/4	3/4	
	C5206H08	3/8	1/2	1 5/8	1 1/16	3/4-16	3/4	7/8	



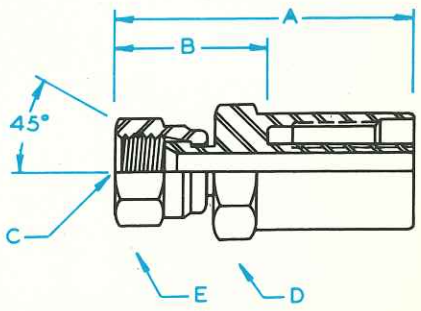
Type R12E

(**Reusable** Rigid Male SAE (JIC) 37° Flare for Type 12 Hose.)



Type R12H

(**Reusable** Swivel Female SAE 45° Flare for Type 12 Hose.)



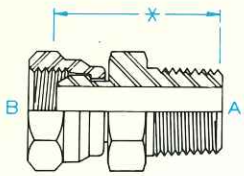
Type S13H, C09H and C52H

(**Permanently Attached** Swivel Female SAE 45° Flare for Types 09, 13, and 52 Hose.)

*Also available in factory crimped assemblies, number to be preceded by "C" to designate crimp; i.e., C1304H04.

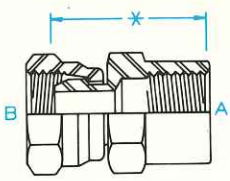
ADAPTERS & ADAPTER UNIONS

MALE PIPE THREAD TO STRAIGHT FEMALE PIPE



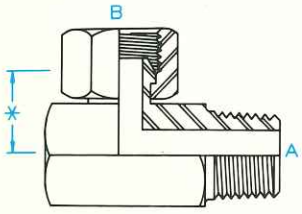
Catalog No.	Male Pipe "A"	Straight Female Pipe "B"	* Hose Displaced
UA02	1/8	1/8	1"
UA04	1/4	1/4	1 1/4"
UA06	3/8	3/8	1 5/16"
UA06B08	3/8	1/2	1 3/8"
UA08B06	1/2	3/8	1 1/2"
UA08	1/2	1/2	1 11/16"
UA08B12	1/2	3/4	1 5/8"
UA12	3/4	3/4	1 11/16"
UA16	1	1	1 15/16"
UA20	1 1/4	1 1/4	2 1/8"
UA24	1 1/2	1 1/2	2 3/16"
UA32	2	2	2 5/16"

FEMALE PIPE THREAD TO STRAIGHT FEMALE PIPE



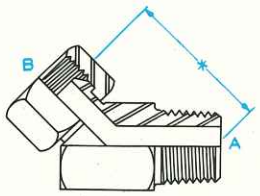
Catalog No.	Female Pipe "A"	Straight Female Pipe "B"	* Hose Displaced
UB02	1/8	1/8	1"
UB04	1/4	1/4	1 3/8"
UB06	3/8	3/8	1 3/8"
UB08	1/2	1/2	1 1/2"
UB12	3/4	3/4	1 11/16"
UB16	1	1	2 1/8"
UB20	1 1/4	1 1/4	2 3/16"
UB24	1 1/2	1 1/2	2 3/16"
UB32	2	2	2 1/8"

MALE PIPE THREAD TO STRAIGHT FEMALE PIPE 90° ELBOW



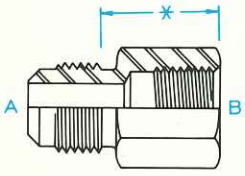
Catalog No.	Male Pipe "A"	Straight Female Pipe "B"	* Hose Displaced
U90A02	1/8	1/8	5/8"
U90A04	1/4	1/4	11/16"
U90A06	3/8	3/8	7/8"
U90A08	1/2	1/2	15/16"
U90A12B08	3/4	1/2	1"
U90A12	3/4	3/4	1 1/8"
U90A16	1	1	1 3/8"
U90A20	1 1/4	1 1/4	1 9/16"
U90A24	1 1/2	1 1/2	1 11/16"

MALE PIPE THREAD TO STRAIGHT FEMALE PIPE 45° ELBOW



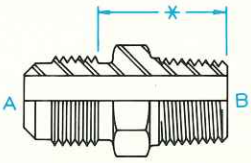
Catalog No.	Male Pipe "A"	Straight Female Pipe "B"	* Hose Displaced
U45A02	1/8	1/8	63/64"
U45A04	1/4	1/4	1 3/8"
U45A06	3/8	3/8	1 9/16"
U45A08	1/2	1/2	1 47/64"
U45A12	3/4	3/4	2 3/32"
U45A16	1	1	2 15/64"
U45A20	1 1/4	1 1/4	2 17/32"
U45A24	1 1/2	1 1/2	2 45/64"

SAE (JIC) 37° FLARE TO FEMALE PIPE CONNECTOR



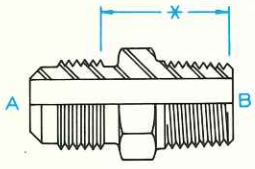
Catalog No.	Tube Size	"A" Thrd.	"B" Pipe Thrd.	Hose* Displaced
S85404	1/4	7/16-20	1/8	35/64"
S8540404	1/4	7/16-20	1/4	11/16"
S85405	5/16	1/2-20	1/8	13/16"
S85406	3/8	9/16-18	1/4	7/8"
S8540606	3/8	9/16-18	3/8	1 1/32"
S85408	1/2	3/4-16	3/8	1"
S8540808	1/2	3/4-16	1/2	1 11/64"
S85410	5/8	7/8-14	1/2	1 7/32"
S85412	3/4	1 1/16-12	3/4	1 11/32"
S85416	1	1 5/16-12	1	1 7/16"
S85420	1 1/4	1 5/8-12	1 1/4	1 19/32"
S85424	1 1/2	1 7/8-12	1 1/2	1 21/32"

SAE 45° FLARE TO MALE PIPE CONNECTOR



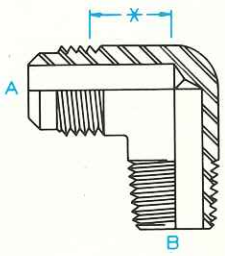
Catalog No.	Tube Size	"A" Thrd.	"B" Pipe Thrd.	Hose* Displaced
B4804	1/4	7/16-20	1/8	5/8"
B480404	1/4	7/16-20	1/4	13/16"
B4805	5/16	1/2-20	1/8	3/4"
B4806	3/8	5/8-18	1/4	15/16"
B480606	3/8	5/8-18	3/8	7/8"
B4808	1/2	3/4-16	3/8	1"
B480808	1/2	3/4-16	1/2	1 3/16"
B4810	5/8	7/8-14	1/2	1 1/32"
B4812	3/4	1 1/16-14	3/4	1 7/32"

SAE (JIC) 37° FLARE TO MALE PIPE CONNECTOR



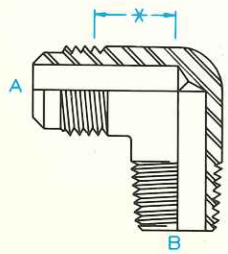
Catalog No.	Tube Size	"A" Thrd.	"B" Pipe Thrd.	Hose* Displaced
S81604	1/4	7/16-20	1/8	11/16"
S8160404	1/4	7/16-20	1/4	61/64"
S81605	5/16	1/2-20	1/8	49/64"
S81606	3/8	9/16-18	1/4	15/16"
S8160606	3/8	9/16-18	3/8	31/32"
S81608	1/2	3/4-16	3/8	31/32"
S8160808	1/2	3/4-16	1/2	1 11/64"
S81610	5/8	7/8-14	1/2	1 15/64"
S81612	3/4	1 1/16-12	3/4	1 19/64"
S81616	1	1 5/16-12	1	1 7/16"
S81620	1 1/4	1 5/8-12	1 1/4	1 31/64"
S81624	1 1/2	1 7/8-12	1 1/2	1 43/64"

SAE 45° FLARE TO 90° MALE PIPE ELBOW



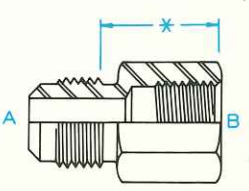
Catalog No.	Tube Size	"A" Thrd.	"B" Pipe Thrd.	Hose* Displaced Apprx.
B4904	1/4	7/16-20	1/8	7/16"
B490404	1/4	7/16-20	1/4	7/16"
B4905	5/16	1/2-20	1/8	7/16"
B4906	3/8	5/8-18	1/4	1/2"
B490606	3/8	5/8-18	3/8	1/2"
B4908	1/2	3/4-16	3/8	1/2"
B490808	1/2	3/4-16	1/2	9/16"
B4910	5/8	7/8-14	1/2	11/16"
B4912	3/4	1 1/16-14	3/4	3/4"

SAE (JIC) 37° FLARE TO 90° MALE PIPE ELBOW



Catalog No.	Tube Size	"A" Thrd.	"B" Pipe Thrd.	Hose* Displaced Apprx.
S82204	1/4	7/16-20	1/8	15/32"
S8220404	1/4	7/16-20	1/4	39/64"
S82205	5/16	1/2-20	1/8	3 7/64"
S82206	3/8	9/16-18	1/4	5/8"
S8220606	3/8	9/16-18	3/8	3/4"
S82208	1/2	3/4-16	3/8	23/32"
S8220808	1/2	3/4-16	1/2	59/64"
S82210	5/8	7/8-14	1/2	59/64"
S82212	3/4	1 1/16-12	3/4	1"
S82216	1	1 5/16-12	1	1 1/32"
S82220	1 1/4	1 5/8-12	1 1/4	1 3/16"
S82224	1 1/2	1 7/8-12	1 1/2	1 27/64"

SAE 45° FLARE TO FEMALE PIPE CONNECTOR



Catalog No.	Tube Size	"A" Thrd.	"B" Pipe Thrd.	Hose* Displaced Apprx.
B4604	1/4	7/16-20	1/8	5/8"
B460404	1/4	7/16-20	1/4	11/16"
B4605	5/16	1/2-20	1/8	5/8"
B4606	3/8	5/8-18	1/4	7/8"
B460606	3/8	5/8-18	3/8	13/16"
B4608	1/2	3/4-16	3/8	13/16"
B460808	1/2	3/4-16	1/2	15/16"
B4610	5/8	7/8-14	1/2	7/8"
B4612	3/4	1 1/16-14	3/4	7/8"

OTHER SIZES AVAILABLE ON REQUEST

FLUID AND CHEMICAL RESISTANCE TABLE

Scope

The attached chart lists serviceability and fluid resistance ratings for various basic types of rubber compounds used as inner tubes in hose. The chart is designed as a quick reference source of information and should be used with discretion. Ratings are of a general nature, and for specific conditions it may be possible to recommend use of a hose even though it does not carry a high rating in the chart. For example, satisfactory intermittent service with destructive chemicals may often be accomplished by flushing out the hose after each use with water or suitable solvents.

Key

A—Indicates excellent, suitable, little or no swelling or softening.

B—Indicates good—generally suitable, swelling or softening is moderate.

C—Indicates fair or conditional service may be expected—may be suitable under some conditions depending upon the exact nature of the service.

D—Indicates unsatisfactory—and is not recommended—generally not suitable.

In some instances, a number in parentheses will be shown by the rating and these are interpreted as follows:

(1) Indicates that the compound may stain the fluid carried.

(2) Specific compound or conditions of use should be evaluated.

The ratings for solvents are based on room temperatures. All others are based on temperatures up to 150° F. For temperatures in excess of 150° F. ratings will drop or the service life will diminish depending upon the severity of the service. Hardening and cracking may occur in some cases—severe swelling and softening in others.

Unless otherwise specified, the materials rated are considered at concentrations up to saturation.

GRS—Government Rubber Type S.

SERVICE CHART

	Neoprene	Buna-N	Butyl	Natural Rubber or GR-S
Acetate Solvents, Crude	D	D(2)	C	D
Acetate Solvents, Pure	D	D(1,2)	C(1)	D
Acetic Acid (10% and over)	C	C	B	D
Acetic Acid (less than 10%)	C	B	A	C
Acetic Acid Vapors	C	B	A	C
Acetic Anhydride	C	C	A	C
Acetone	D	D(2)	A	A
Acetylene	C	C(2)	B	C
Air	A	A	A	A
Air (Hot)	C	C	A	C
Alcohols, Aliphatic	B	A	A	A
Alcohols, Aromatic	C	C(2)	B	C
Alkaline Solutions (Hydroxides)	B	A	A	A
Aluminum Salt Solutions	B	B	A	A
Ammonia Gas	B	B	B	B
Ammonia, Liquid (Anhydrous)	B	B	B	C(2)
Ammonia, Aqueous	B	A	A	A
Ammonia Salt Solutions	B	B	A	A
Aniline Dyes	C	C	D	D
Aniline Oils	C	D(2	D	D
Aroclor (Chlorinated Hydrocarbon) (Hydraulic Fluid)	D	D	D	D
Asphalt	C	C	D	D
Benzene (Benzol)	C	D(2)	D	D
Benzine (Gasoline)	B	A	D	D
Bromine	D	D	D	D
Butane	A	A	D	C(2)
Butylene	C	B(2)	D	D
Calcium Hypochlorite (no free chlorine)	B	B	A	B(2)
Calcium Salt Solutions	B	B	A	A
Carbolic Acid (Phenol) R.T.	C	C	C	C
Carbolic Acid (Phenol) Hot	D	C	C	D
Carbon Dioxide (Dry)	A	A	A	A
Carbonic Acid	A	A	A	A
Carbon Disulphide	D	D(2)	D	D
Carbon Tetrachloride	D	D(2)	D	D
Cellosolves	D	D	B	D
Cellulubes (Hydraulic Fluid—Phosphate Ester Base)	C	D	A	D
Chlorinated Solvents	D	D(2)	D	D
Chlorine (Dry)	C	C	C	C
Chlorine (Wet or Solutions)	D	D	D(2)	C(2)
Cottonseed Oil	B	B(2)	A	D
Cresol	C	C	B	C
Creosote Oil	C	C	D	D
Cyclohexane	C	C(2)	D	D
Chromic Acid	D	D	C	D
Citric Acid	C	B	A	C
Copper Salt Solutions	C	B	A	B
Dibutyl Phthalate	D	D	B	D
Diesel Fuel	B	B(2)	D	D
Ethers	C	A	C	D
Ethylene Glycol	B	A	A	A
Ethylene Dichloride	D	D(2)	D	D
Ferric Salt Solutions	B	B	A	A
Ferrous Salt Solutions	B	B	A	A
Formaldehyde	C	C	B	C
Formic Acid	C	B	A	C
Fuel Oil	B	A	D	D
Furfural	C	C	D	D
Freon 12	C	C(2)	C	D
Freon 13	C	C(2)	C	D
Freon 22	C	C	D	D
Gasoline (Sour)	B	A	D	D
Gasoline (Refined)	B	A	D	D
Glycerine (Glycerol)	B	A	A	A
Heavy Water (D_2O)	A	A	A	A
Heptane	A	A	D	D
Hexane	A	A	D	D
Houghto Safe—600 Series	A	A	A	A
Houghto Safe—1000 Series	C	D	A	D
Hydraulic Fluid, Petroleum Base	B	A	D	D
Hydraulic Fluid, Water Glycol Base	A	A	A	A
Hydraulic Fluid, Phosphate Ester Base	C	D	A	D
Hydraulic Fluid, Chlorinated Hydrocarbon	D	D	D	D
Hydrochloric Acid	D	C	A	A
Hydrocyanic Acid	D	B	B	B
Hydrofluoric Acid	D	C	A	A
Hydrolube	B	A	A	A
Hydrogen	B	B	B	C
Hydrogen Peroxide (Dilute) %	B	B	B	B
Hydrogen Sulfide (Dry)	C	C	B	C
Hydrogen Sulfide (Wet)	C	B	A	C
Hypochlorite Solutions	B	B	A	B(2)
Irus 902 Hydraulic Fluid	A	A	D	D
Kerosene	B	A	D	D
Ketones	D	D(2)	A	B
Lacquers, Lacquer Solvents	D	D(1,2)	C(1,2)	D
Linseed Oil	C	B(2)	A	D
Lubricating Oils—Petroleum Base	B	A	D	D
Lubricating Oils—Diester Base	D	B	C	D
Magnesium Salt Solutions	B	A	A	A
Mercuric Chloride	C	B	A	B
Mercury	A	A	A	A
Mineral Oil	B	A	D	D
Natural Gas	A	A	D	C(2)
Naphtha	A	A	D	D
Naphthalene	C	C	B	D
Nitric Acid (less than 20%)	D	C	A	B
Nitric Acid (20% and over)	D	D	D	D
Oleic Acid	B	B	B	D
Oxalic Acid	C	B	A	C
Oxygen	B	B	A	B
OS-45 Hydraulic Fluid (Silicate Ester Base)	B	B	A	D
Paint	D	D(1,2)	D	D
Petroleum Oils (Sour)	B	B	D	D
Petroleum Oils (Refined)	B	B	D	D
Phenol	C	C	C	C
Phosphoric Acid (Commercial)	C	B	A	A
Potassium Salt Solutions	C	B	A	A
Propane	A	A	D	C(2)
Pydraul F-9	C	D	A	D
Pydraul 150	C	D	A	D
Pydraul 600	C	D	A	D
Pydraul 625	C	D	A	D
Skydrol	D	D	A	D
Skydrol 500	D	D	A	D
Skydrol 7000	D	D	A	D
Sodium Salt Solutions	C	B	A	A
Steam	D	D	C	A(2)
Sulfur	C	C	C	D
Sulfur Dioxide (Dry)	C	B	A	B
Sulfur Dioxide (Wet)	C	B	A	B
Sulfuric Acid (10%)	D	B	A	A
Sulfuric Acid (10-75%)	D	D	B	C
Sulfuric Acid (75% and over)	D	D	B	D
Sulfurous Acid	C	B	A	B
Tannic Acid	C	B	A	C
Toluene (Toluol)	D	D(2)	D	D
Trichlorethylene	D	D(2)	D	D
Tricresyl Phosphate	D	D	B	C
Turpentine	B	A	D	D
Varnish	D	D(2)	D	D
Water (Fresh or Salt to 140°F)	A	A	A	A
Water, Hot (140°F to 200°F)	D	B	A	B
Zinc Salt Solutions	C	B	A	A
Xylene (Xylol)	D	D	D	D

COMPARATIVE PROPERTIES OF COMMERCIAL SYNTHETIC RUBBER

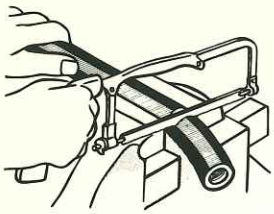
	Natural Rubber	GR-S	Buna-N	Neoprene	Butyl
Extensibility	E	G	G	E	E
Resilience	E	G	*F•G	VG	L
Tensile	E	*F•G	G	VG	G
Resistance to—					
Plastic Flow	VG	G	G	G	*F•G
Abrasion	VG	G•VG	G•VG	VG	F
Tear	VG	*F•G	*F•G	G	*F•VG
Resistance to—					
Air	F	G	G	E	E
Ozone	Inadequate	Inadequate	F	E	E
Light	F	F	L	E	E
Electrical Properties	E	E	F	F	E
Impermeability to Gas	G	G	G	VG	E
Impermeability to Water	G•VG	*F•G	*F•G	*F•G	VG
Heat	G	*F•VG	*F•VG	VG	F
Cold	VG	VG	*F•G	*F•VG	F
Petroleum	L	L	E	G	L
Aromatic Oils	Inadequate	Inadequate	F	L	Inadequate

E—Excellent
G—Good
F—Fair
L—Low
VG—Very Good
F•G—Fair • Good
F•VG—Fair • Very Good
*—Depend Upon Application

ASSEMBLY–ORDER INSTRUCTIONS

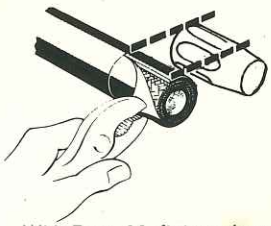
ASSEMBLY INSTRUCTIONS (REUSABLE)

STEP ONE



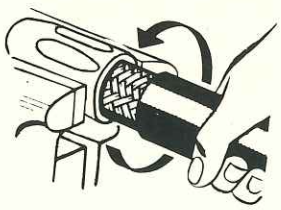
Cut hose to required length with a fine tooth hacksaw.

STEP TWO



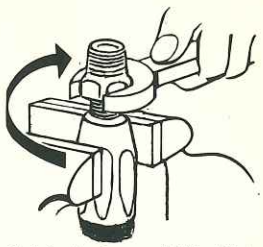
With Type 11 fittings determine hose skive length by holding end of hose up to notch on fitting body. Cut to wire braid circularly and longitudinally as shown. Strip cover from end of hose. With Type 12 fittings no skiving is necessary.

STEP THREE



Secure body in vise. Turn hose counter clockwise into body until it bottoms. Unscrew ¼ turn.

STEP FOUR



Lubricate stem and I.D. of hose liberally. Screw stem into body until hex of stem just touches body.

ORDERING INFORMATION

Flexonics identify synthetic rubber hoses by type number as follows:

Hose Reinforcement and Cover	Type Number
Fabric Wrapped, Neoprene Cover	09
One Wire Braid, Neoprene Cover	10
Two Wire Braid, Neoprene Cover	11
One Wire Braid, Cotton Cover	12
Two Rayon Braid, Neoprene Cover	13
Woven Fabric and Spiral Wire, Neoprene Cover	31
One Woven Fabric, Neoprene Cover	52
Three Wire Braid, Neoprene Cover	77
S.S. Wire Braid (Teflon Tube)	79
One Wire Braid, Thin Neoprene Cover	85

The fitting "Type" designation must be shown on all orders for hose assemblies. This "Type" letter specifies the method of fitting attachment as follows:

C—Standard Crimped (Permanent)
R—Reusable
S—Swaged (Permanent)
CFF—Full-Flo Crimped (Permanent)

The fitting "Style" designation specifies the fitting thread connections as follows:

Connecting Thread Style	Letter Designation
Rigid Male Pipe Thread	A (pages 8, 10)
Rigid Male SAE (JIC) 37° Flare	E (page 12)
Swivel Female SAE (JIC) 37° Flare	F (pages 9, 11)
Swivel Male Pipe Thread ("O" Ring Pak-Nut)	C (pages 10, 11)
Swivel Female SAE 45° Flare	H (page 12)

HOW TO ORDER

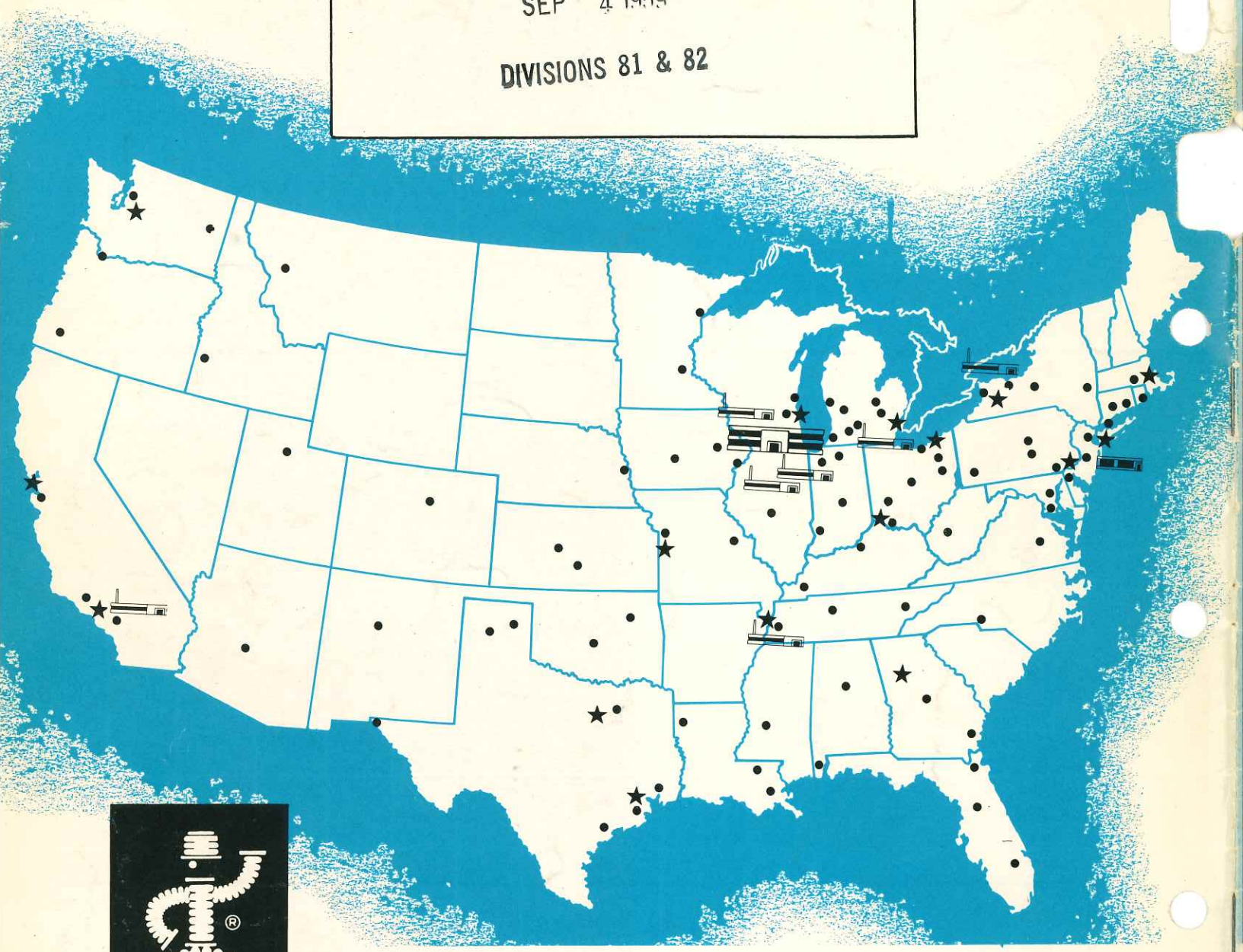
Order synthetic hose assemblies by specifying the assembly catalogue designation as follows:

Fitting Type (Method of Assembly)	Hose Type and Size	Fitting Style & Size on One End	Fitting Style & Size on Other End	Assembly Over All Length
S	1108	F10	A08	24½
Swaged	Type 11 Hose with ½" I.D.	Swivel Female with SAE (JIC) 37° Flare Nut (for ⅝" O.D. Tubing)	Solid Male with ½" NPTF Pipe Thread	24½" Assembly Over All Length Measured From Extreme Ends of Fittings

PATENT OFFICE

SEP 4 1959

DIVISIONS 81 & 82



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